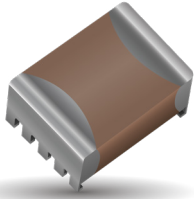


# SMPS Capacitors

## RH Style - Surface Mount 'J' Lead Range



The RH range uses high volumetric efficient X7R capacitors in a "J" style lead frame.

The range of components are uncoated and are suitable for input or output filter capacitors in high frequency DC-DC convertor, automotive, telecom, industrial and military applications.

When large ceramic capacitors are used in applications they can easily be affected by stresses caused by temperature variations, thermal shock, mechanical vibrations and PCB bend movement. The RH range is designed with a "J" type lead frame which greatly reduces all of these thermo mechanical stresses experienced by large capacitors. The RH range allows the capacitors to be doubled stacked so a higher volumetric efficiency can be achieved by the customer and this saves PCB space.

### FEATURES

- RH 21/22 are AEC-Q200 compliant.
- RH range has low ESR/ESL capability
- PCB space saving using double stacked MLCCs
- Enhanced thermo mechanical stress resistance

Note: AVX does not recommend or advise the use of adhesives to secure the RH components to the PCB.

### ELECTRICAL SPECIFICATIONS

**Temperature Coefficient** CECC 30 000, (4.24.1)

X7R: C Temperature Characteristic - ± 15%, -55°C to +125°C

**Capacitance Test**

Measured at 1 VRMS max at 1KHz

**Dissipation Factor 25°C**

2.5% max at 1KHz, 1 VRMS max

**Insulation Resistance 25°C**

100K megohms or 1000 megohms-μF, whichever is less

**Dielectric Withstanding Voltage 25°C (Flash Test)**

250% rated voltage for 5 seconds with 50 mA max charging current. (500 Volt units @ 150% rated voltage)

**Life Test (1000 hrs) CECC 30 000 (4.23)**

200% rated voltage at +125°C.

(500 Volt units @ 120% rated voltage)

**Thermal Shock IEC 68.2.14**

-55°C to +125°C, 5 cycles

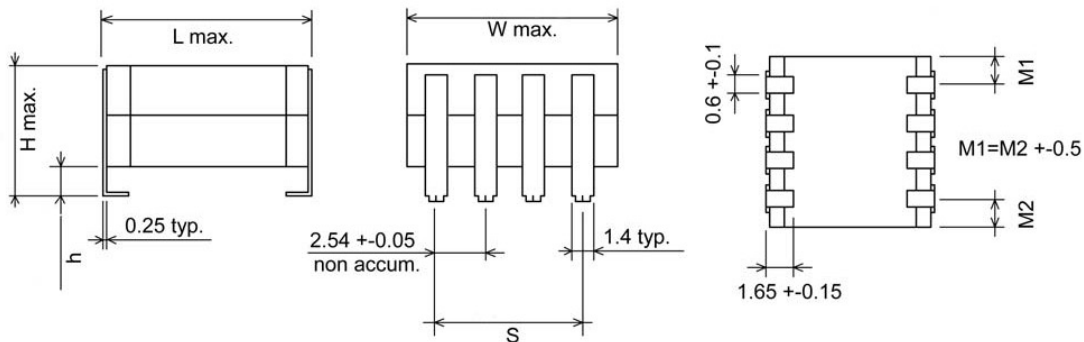
**Resistance to Solder Heat IEC 68.2.20**

Typical ESR (mΩ) 3 μF, 100V X7R	
ESR @ 100KHz	17
ESR @ 500KHz	12
ESR @ 1MHz	14

### DIMENSIONS

millimeters (inches)

Style	L max	W max	H max	S ± 0.1 (±0.004)	h	No. of leads per side
RH21	7.20 (0.283)	5.40 (0.213)	4.60 (0.181)	2.50 (0.098)	1.50 ± 0.30 (0.059 ± 0.012)	2
RH22	7.20 (0.283)	5.40 (0.213)	7.50 (0.295)	2.50 (0.098)	1.50 ± 0.30 (0.059 ± 0.012)	2
RH31	7.62 (0.300)	7.00 (0.270)	5.08 (0.200)	5.08 (0.200)	1.78 ± 0.25 (0.070 ± 0.010)	3
RH32	7.62 (0.300)	7.00 (0.270)	8.13 (0.320)	5.08 (0.200)	1.78 ± 0.25 (0.070 ± 0.010)	3
RH41	9.20 (0.362)	8.70 (0.342)	4.90 (0.192)	5.08 (0.200)	1.60 ± 0.10 (0.062 ± 0.004)	3
RH42	9.20 (0.362)	8.70 (0.342)	8.20 (0.323)	5.08 (0.200)	1.60 ± 0.10 (0.062 ± 0.004)	3
RH51	10.7 (0.421)	10.7 (0.421)	4.90 (0.192)	7.62 (0.300)	1.60 ± 0.10 (0.062 ± 0.004)	4
RH52	10.7 (0.421)	10.7 (0.421)	8.20 (0.323)	7.62 (0.300)	1.60 ± 0.10 (0.062 ± 0.004)	4
RH61	14.9 (0.586)	13.6 (0.535)	4.90 (0.192)	10.2 (0.400)	1.60 ± 0.10 (0.062 ± 0.004)	5
RH62	14.9 (0.586)	13.6 (0.535)	8.20 (0.323)	10.2 (0.400)	1.60 ± 0.10 (0.062 ± 0.004)	5



Performance of SMPS capacitors can be simulated by downloading SpiCalci software program - <http://www.avx.com/download/software/SpiCalci-AVX.zip>  
 Custom values, ratings and configurations are also available.

# SMPS Capacitors

## RH Style - Surface Mount 'J' Lead Range



### X7R STABLE DIELECTRIC

Cap $\mu$ F	RH21/RH22 Style				RH31/RH32 Style				RH41/RH42 Style				RH51/RH52 Style				RH61/RH62 Style			
	25	50	100	200	50	100	200	500	50	100	200	500	50	100	200	500	50	100	200	500
0.047																				
0.056																				
0.068								RH31												
0.082																				
0.1																				
0.12																				
0.15								RH32					RH41							
0.18																				
0.22																				
0.27								RH31												
0.33													RH42							
0.39													RH41							
0.47																				
0.56								RH32												
0.68																				
0.78																				
0.82								RH31												
1																				
1.2																				
1.5																				
1.8								RH31												
2.2																				
3																				
3.3								RH32												
3.9																				
4.7																				
5.6																				
6.8																				
8.2																				
10																				
12																				
15																				
18																				
22																				
33																				
47																				
68																				

BME
BME
PME
PME
BME Development

### PACKAGING

For availability of further parts in the RH21/RH22 Series, contact manufacturing.

Style	Qty/Reel 13"	Max. Qty/Waffle Pack
RH21	800	270
RH22	500	270
RH31	800	108
RH32	500	108
RH41	see note	108
RH42	500	100
RH51	750	88
RH52	see note	88
RH61	500	42
RH62	see note	42

Note: T&R is not yet available. Contact manufacturing for further information as this will be available in the future.

BME Available in RoHS and Non-RoHS PME

Available Only in Non-RoHS



### HOW TO ORDER

<b>RH</b>	<b>31</b>	<b>5</b>	<b>C</b>	<b>225</b>	<b>M</b>	<b>A</b>	<b>3</b>	<b>0</b>	<b>A</b>	<b>3</b>
Style Code (see table above)	Size Code	Voltage Code 3 = 25V 5 = 50V 1 = 100V 2 = 200V 7 = 500V	Dielectric Code C = X7R	Capacitance Code (2 significant digits + no. of zeros) eg. 105 = 1 $\mu$ F 104 = 0.1 $\mu$ F	Capacitance Tolerance K = $\pm$ 10% M = $\pm$ 20%	Specification Code A = Non-customized	Package Code 3 = Waffle Pack A = Tape & Reel	Lead Dia. Code 0 = Standard R = RoHS Compliant	Lead Space Code A = Standard	Lead Style Code 3 = 'J' Lead



The Important Information/Disclaimer is incorporated in the catalog where these specifications came from or available online at [www.avx.com/disclaimer/](http://www.avx.com/disclaimer/) by reference and should be reviewed in full before placing any order.